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[redacted] 3855-64
Series A, Cy #1

DEPARTMENT OF THE AIR FORCE
SAFSP
Air Force Unit Post Office, Los Angeles 45, California

[redacted]

13 January 1964

MEMORANDUM FOR DR. McMILLAN

SUBJECT: Management Aspects, Program 162

1. This package contains the information you wanted concerning the several management aspects of Program 162.

[redacted]

2. It is presented in the following order:

Tab A.	Organization Charts (1) SAFSP (overt) (2) SAFSP (covert) (3) SSD (4) SCF (5) Operational Information Flow
Tab B.	Disposition of Agena vehicles
Tab C.	ECP #LH-194-62 pertaining to implementation of ABC program changes
Tab D.	Systems documentation; Summary history of Configuration Control Board management arrangement
Tab E.	Pertinent contractual work statements

3. In addition, the following requested information is furnished:

a. The relationship between Progr[redacted]nd Agena D Program Office:

As requirements become firm, Prog[redacted]nforms the SSD Agena D office (as well as other support agencies; i.e., [redacted]BTL) of need dates and quantities. If operational or technical requirements have not changed significantly since the prior order, no special arrangements are required. Significant changes in program requirements (i.e., large increase in payload weight, increased thrust for booster) require more

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- Page 2 of ~~SPECIAL HANDLING~~

Lockheed Aircraft Corp. - Missiles and Space Divisio [redacted] 3855-64

PROPOSED TECHNICAL DIRECTIVE

NO. ______

TO:

DATE:

SUBJECT:

1. The purpose of this Technical Directive is to

2. Justification

ORIGINATOR ____________

ORG. ____________

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detailed negotiation with the Agena D office to establish the Agena D configuration which will be supplied to the program.

At the Agena D subsystem level, there is a continual technical relationship between personnel of the two offices. For example, technical personnel o[redacted]rogram must be aware of and evaluate Agena D engineering change proposals from a mission standpoint. Additionally, a continuing coordination is required to insure that program peculiar equipment is integrated into the Agena D production process as early as it is economically and technically sound to do so.

b. The relationship between Advanced Projects Facility (Skunk Work[redacted]Resident Agency Officer (Col Murphy), and ProgrDe[redacted]

[redacted] The AP facility is a product of the covert nature of the [redacted]ogram. Here camera and recovery assemblies are integrated into a payload package compatible with the program Agena D configuration. Because of the covert nature of this facility, it is necessary to provide contractual coverage for this facility through Agency contract channels.

[redacted] This facility is technically not responsive to the SSD [redacted]ogram director until all CCB members approve of technical changes.

Colonel Murphy, as an Agency-assigned Air Force officer, is responsible for control of the camera operation per directives received from the DNRO operations activity. In addition, he is a CCB member. The AP facility is a convenient covert facility in which Colonel Murphy's camera operation programming activities can take place and for this reason his group has historically been housed at the AP facility.

4. If you desire further information I can fill in over the Ky-9. Also, we intend to cover this subject in greater detail with you during your 16 January visit.

[redacted]

ROBERT E. GREER
Major General, USAF
Director, Special Projects

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Mgmt Aspects, PrDe[redacted]

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1. In response to the question "What directives and guidance are furnished to contractors and support agencies in order to conduct the 162 Program?" the following is submitted as examples of the types of directives that are issued, documents prepared, and plans and procedures established to conduct[redacted]ogram. This discussion is divided into two parts, the [redacted]ing a summary description of the over-all documentation scheme employed on the overt side, exclusive of the direction provided to the contractor as part of the basic contracts, and the usual amendments which become part of the contracts file. The second part of the description is a memorandum for Dr. McMillan from General Greer, which summarizes the history and the operation of the Configuration Control Board, which is the principal method of providing the contractor with directives in the black. While not covered in this memorandum, the other means by which black instructions are provided to both the contractor and supporting agencies is by covert TWX link and oral instructions. The description following in regard to overt documentation has been based on the usual documentation prepared for any space system activity, and it is designed to cover in a very broad way the program definition phase, the planning phase, the establishment of requirements documents, companion support plans, the development of specification test plans, test objectives, operational requirements supporting documents, and the feedback of the results and evaluations of test activity into the system.

2. Flight test documentation is either general (that is, applying to the total program) or specific (for each test). Although the formal requirements have changed over the past several years, the basic document controlling generation of reports, directives and orders is SSD Manual 80-1, 6 April 1962. Air Force 375 series regulations are influential in much of the reporting process. Individual documentation or range-users handbooks are published by the two major national ranges. SSD has in effect several exhibits (61-49 and 61-50, for instance) which detail preparation processes. Specific and individual agreements covering program peculiar items also influence general requirements.

3. The attached chart lists the major directive and directed reports and orders involved in a flight test operation. Roman numerals along the left margin identify categories of reports (or directives). Brief explanations covering the preparation responsibility, timing and purpose of each entry are provided on following sheets. Each paragraph of explanation is keyed to a basic Roman number entry on the main chart.

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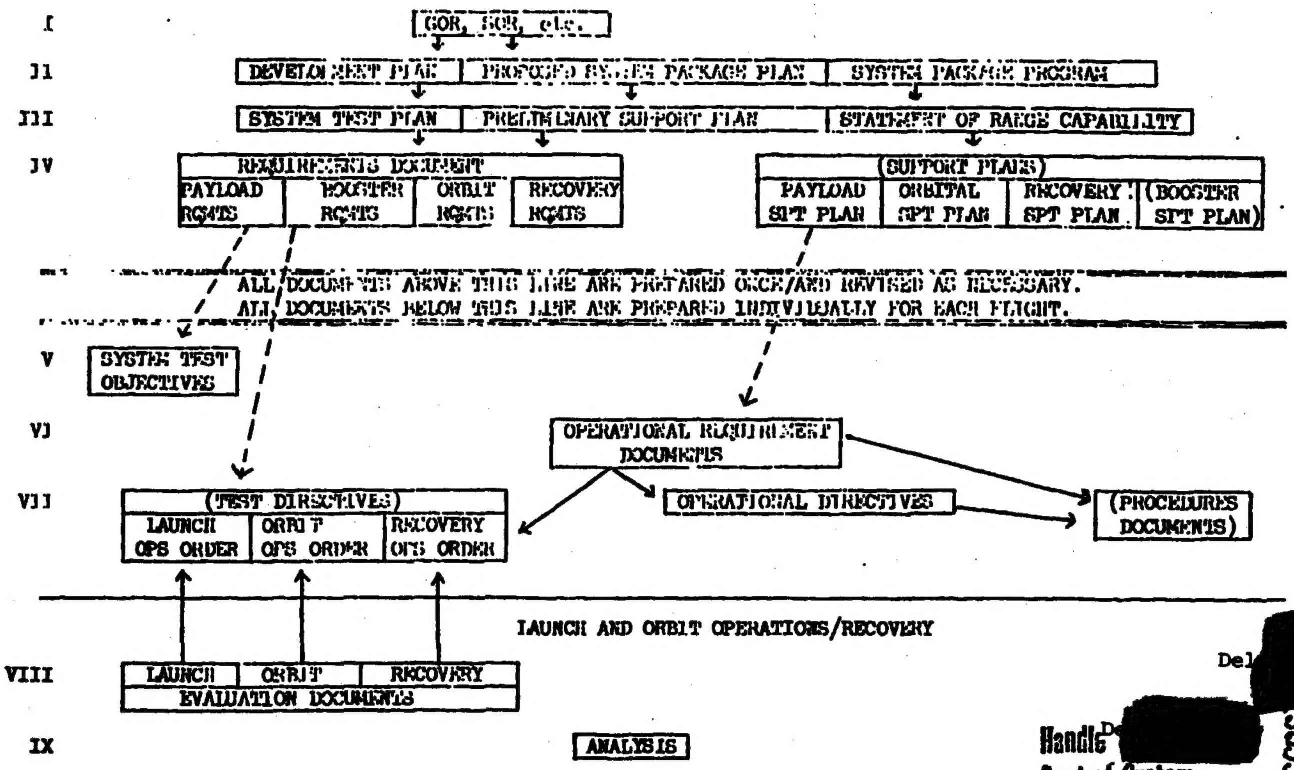
4. Part two of this response is contained in General Greer's memorandum cited in paragraph 1 above, which is attached.

FLIGHT TEST DOCUMENTATION:



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Flight Test Documentation

I. The GOR, SOR or equivalent are basic requirements documents originated by a higher headquarters and passed to AFSC (SSD/Program Office).

II. A Development Plan, Proposed System Package Plan, or System Package Program is prepared by the program office 24 months before the proposed initial launch. If a contractor selection process has earlier been completed, the prime or SETD contractor generally will have a considerable hand in its preparation.

II. a. The Program Office (with SETD participation) prepares 24 months in advance of initial launch a Planning Estimate. It serves to alert support offices and agencies to impending program requirements.

III. a. The System Test Plan is prepared by the Program Office (or by the SETD with Program Office guidance) 20 months in advance of initial launch. It specifies the general philosophy of the flight test program and serves as basic policy guidance for later documents and for conduct of the program itself.

III. b. A Preliminary Support Plan, based on the Planning Estimate and other available program documents, is required 23 months before initial launch (and within 30 days of receipt of the Planning Estimate) is prepared by the Satellite Control Office and Satellite Recovery Office of SSD, with advice and assistance from the Program Office; it includes general performance requirements, milestones, and cost estimates.

III. c. The lead range, on receipt of the Planning Estimate, begins preparation of the National Range Commander's Statement of Capability, which is due about 28 months before first launch. Further refinement is based on the Development or Program Package Plans.

IV. a. The Requirements Document (which may be either a unified or a composite document) includes a resumé of Payload (or Program Peculiar) Requirements, Booster (or Standard Launch Vehicle) Requirements, Orbit Requirements, and Recovery Requirements. If a composite document, it is prepared by the SETD contractor, reviewed by the Program Office, and published by the responsible range. Input is obtained from program and launch vehicle offices of SSD, as appropriate. The document, or individual documents serving the same purpose, must be available 15 or 20 months in advance of initial launch.

IV. b. Based in part on Requirements Documents, Support Plans (which are individual documents) are prepared for Payload (Program Peculiar), Boost (or SLV), Orbit, and Recovery activities. Preparation should be complete 12 months before initial launch. The SETD contractor, with the participation of the responsible range (and affected wings) and the Program Office, provides inputs. Actual preparation is the responsibility of SSD's Satellite Control Office (Orbit Support), Satellite Recovery Office (Recovery Support), and the range (Payload or Program Peculiar Item Support). All support plans require review and approval by the program director. Revisions, on which contractual action may be based, are relatively frequent.

The foregoing documents constitute the sum of general guidance provided for a specific flight test program. All are required at least a year in advance of a planned initial launch.

V. The System Test Objectives document is prepared by the SETD contractor and the Program Office three months before each scheduled launch. It serves to alert supporting agencies to specific test objectives and defines general bases for evaluating results after the launch. (Tab annexes to a single document may be used instead if flight-to-flight test objectives are relatively constant.)

VI. Operational Requirement Documents, which must be available at least a month earlier than a programmed launch, are prepared in two parts (one covering launch, the other orbit and recovery) by the responsible wings (6594, 6595 or 6555) and are submitted to the national range which is concerned. They define in greater detail the elements of the Requirements Documents.

VII. Three specific and detailed sets of documents must be prepared in the period ranging from two to eight weeks before each launch. They are based on guidance derived from the System Test Objectives and Operational Requirements documents.

VII. a. Test Directives, needed from one to two months before a launch, include Launch, Orbit and Recovery Test Directives (or equivalent operations orders). The individual directives are prepared by the responsible wings (6594, 6595 or 6555) for launch and orbit operation and by the 6594th Recovery Control Group for recovery.

VII. b. Operational Directives, prepared by the range, are issued two weeks before each launch. The only required program office input is the Operational Requirements Document.

VII. c. A variety of procedures documents may be required by either the range or the launch wing. Countdown, range safety, pad safety, and flight termination (destruct) are typical subjects. As appropriate, they are prepared by the SETD or subcontractor, the wings, and by the program (and individual project) offices. If required, they generally are due a month or more in advance of a specific launch date.

VIII. Within 20 days after completion of the specified operation, a Final Launch Report, Orbit Evaluation Report, and Recovery Evaluation Report must be prepared by the responsible wing (with contractor assistance, as appropriate) for submission to the program office.

IX. A flight Test Engineering Analysis prepared by the SETD contractor is due in the program office at a specified date after the conclusion of an individual test operation, generally 40 days. The report is a detailed analysis of all aspects of the operation; therefore, it generally includes inputs from subcontractors or associates.

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13 January 1964

MEMORANDUM FOR DR. McMILLAN

SUBJECT: Summary History of the Configuration Control Board Management Arrangement

In response to your request to me during my visit on 5 December in regard to some background on the CCB, I have assembled the following facts for your information.

1. Background.

a. The early CORONA management arrangement (1958-1960) can be described in the following fashion. The contract structure was composed of Lockheed as prime weapon system contractor on the overt side to the Air Force. Lockheed was also under contract to the agency as a system integrator for payload integration with ITEK and FCIC as black subcontractors to Lockheed. FCIC was responsible for camera construction, while ITEK conducted the camera subsystem and calibration tests. At that time, both the Air Force and the agency had respectively overt and covert contracts with GE for various portions of the re-entry body work. The Air Force portion at this time was concerned with bio-medical experiments and was principally employed as a cover.

b. On the government side, Colonel F. C. E. Oder was the Air Force manager at the working level under General Ritland, while Mr. Bissell retained the responsibility for major technical and policy decisions associated with system development. Program progress was generally reviewed and reported to a group composed of Purcell, Land and [redacted]e President's Scientific Advisory Committee, and Bissell a[redacted] the CIA, and Dr. Herbert York of ARPA. General Ritland and General Schriever occasionally participated.

c. When the program wa[redacted] to ARPA as part of the original cover scheme, Capta[redacted]N, was transferred from Colonel Oder's shop at BMD to act [redacted] the payload coordinator for the CIA on the ARPA staff. Due to Colonel Oder's involvement in the SENTRY/SAMOS activity, he elected to visibly get out of the program, and Colonel Red Sheppard was appointed CORONA Director at BMD. Subsequently, Colonel Sheppard was replaced by Colonel Paul Worthman.

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d. The record indicates that the CIA (Bissell) objected to the FCIC/ITEK arrangement and in May of 1960 proposed that both these contractors become associate contractors to LMSD. During the period May 1960 to September 1960, the contract and management structure was the subject of considerable discussion and various proposals.

e. In September 1960, shortly after the first CORONA success, ITEK induced Land to propose an improved CORONA camera directly to the President. This proposal was the outgrowth of various recommendations on the part of both ITEK and FCIC for product improvement and camera re-design. The first of these re-designs was the C^{1} camera which had been a general product improvement of the basic C instrument. The proposal which Dr. Land took to the President was substantially a new design which had grown out of the work done by ITEK and FCIC independently to improve the basic C instrument.

f. The competitive attitude which evolved between FCIC and ITEK was basically the result of the agency's dis[redacted] the contract structure noted above. In fact, the agenc[redacted]ad asked for separate proposals on an improved instrument from each contractor. For this reason, the ITEK C^{111} proposal, which Dr. Land sponsored, eliminated FCIC from the contract structure. ITEK got "verbal approval" on the C^{111} from Land, who cited Eisenhower as the authority, and Mr. Bissell did not challenge this arrangement.

2. Creation of the CCB.

a. The creation of the CCB was an outgrowth of the negotiations which took place with the initiation of the MURAL system. The decision to undertake the MURAL camera configuration was basically made by Mr. Bissell.

b. Historically, the undertaking of a new development task was accompanied by a re-appraisal of management arrangements and working relationships. The actual agreement for the establishment of a CCB occurred at a meeting of 4 April 1961, in which the principal negotiator[redacted] Charyk and Mr. Bissell, with Colonel Worthman and Colon[redacted]esent. This meeting was the culmination of a number of proposals and counter-proposals, which included a variety of contractual and management arrangements. Dr. Charyk had taken the position, which ultimately proved to be the case, that Lockheed should be given a system engineering function with ITEK as an associate contractor. Further, Dr. Charyk had expressed a desire to keep the system engineering/technical direction responsibility in the Air Force. As a result of his desire, the BMD volunteered to assume the over-all SETD function, and on 29 April 1961, the CIA agreed to this arrangement.

c. Apparently there was some hope at that time that at the conclusion of the C^{111} effort, then consisting of approximately two payloads, the M effort might be established as a separate program. If this condition had occurred, and in view of the Air Force SETD responsibility for M, it appeared to some that a clear definition of program responsibility would be relatively easy. However, when the M system was subsequently incorporated into the original program, the M arrangements were, by osmosis, diffused through CORONA.

d. I would like to point out that it was during the same time period that negotiations were in progress for the establishment of the first version of the NRO charter. During this period, a rather tenuous relationship existed between the CIA and SAFMS. The NRO was pressing for a clear definition of responsibilities and authorities in the reconnaissance area, but due to the sensitive relationships between the principal parties, the hope that the MURAL Program might evolve into a separate system, the acceptance by the CIA of an AF SETD responsibility, and the many other problems existing at the time, it was decided not to drive the CORONA issue to a clear conclusion.

e. In June of 1961, the AF SETD contract was issued to Lockheed in the black, which established the Air Force, specifically the AF Space Systems Division, as the responsible agency for systems engin[redacted]hnical direction of the MURAL effort. This contract[redacted]708, was written under my contracting authority. The period of performance covered by this contract was April 1961 to October 1962. These arrangements were subsequently modified during March and April of 1962 to more clearly define functions and responsibilities of the SETD activities.

f. Clauses were inserted into the associate contractors' contracts which, by inclusion, obligated the associate contractors to perform contractually under the terms of the SETD agreement in the basic Lockheed contract.

g. The CCB's relationship to the SETD contract evolved as a matter of inter-government working expediency. Contractually, the contractors were responsible to me and to the Contracting Officer whose contract was affected by SETD decisions.. The only place that the CCB appears in the contractual documents is on the form or cover sheet for a technical directive, wherein a space is provided for AFSSD/LMSD coordination.

h. As the result of the 4 April meeting mentioned above and various understandings growing out of negotiations, the CORONA/MURAL CCB, by mutual agreement, consisted of a CIA representative from Headquarters (technical), a CIA representative from the field for operational considerations (Colonel Murphy), and the then BMD people from the Discoverer Program Office, initially only one person, Captain A. Johnson. Subsequent [redacted] an observer status by a representative from SAFMS (M[redacted]ged when, again by mutual agreement of all parties, Maj[redacted]s made a voting member.

i. At this point it might be well to define SETD as it was interpreted for the purposes of these arrangements. System engineering and technical direction for the program (the word program was interpreted to mean black payload matters) was the responsibility of the AF Space Systems Division. Lockheed was contracted with to provide specified system engineering and technical direction over associate contractors which included the following functions:

(1) Determination of system requirements and establishment of performance specifications.

(2) Recommend to the government required research, development and experimentation to achieve established objectives.

(3) With approval, establish design specifications, test specifications, engineering analysis, reports, procedures and specifications, system evaluation, subsystem and component development, preparation and coordination of technical directives, establishment of program milestones, master schedule, status reporting, system integration, establishment of interfaces, reliability, associate contractors' work statements, qualification and acceptance tests of associate contractors deliverable items, etc.

The CCB function under this concept was to control payload configuration, act as the internal government coordinating organization, be approval authority over all technical directives issued by the contractor which affected payload, and serve as coordinating and review group for items not within the scope of the contract.

j. The LMSD established within the covert area (Advanced Projects) a SETD group which, under the direction of the CCB, had authority to issue orders to the associate contractors; however, the associate contractors had to have approval of the CIA Contracting Officer in matters which involved changes in scope of work, costs, or delivery schedule changes.

3. CCB Operation.

a. Management of the ARGON Program fell into the same general pattern as CORONA/MURAL, with the establishment of the CCB concept. Initially the ARGON arrangements had been defined in July of 1959. At that time it was agreed that the BMD/LMSD arrangements for CORONA be essentially the same as those for ARGON. The principal difference existed in the fact that over-all technical guidance on the ARGON payload was provided by DDR&E. At the time the CCB for ARGON was established, a DDR&E representative was added to the ARGON Board. The first such representative was Mr. Ray Adcock.

b. With the establishment of the LANYARD Program in April of 1962, Dr. Charyk proposed and the CIA (Scoville) agreed that I would be responsible for all technical management aspects of LANYARD, including payloads; that the CCB system of MURAL would be continued; that the CIA would continue to have responsibility for mission planning and camera on-orbit operations. Further, the CIA would be responsible for program security, covert contracting and extending the CORONA teletype net to include all LANYARD participants. In my development plan for the conduct of the LANYARD Program I established, to the best of my knowledge, the first formal description of the CCB in a government document. This description is attached. Contractually, this was implemented in substantially the same fashion as the MURAL SETD contract, with the exception that Lockheed was given a systems engineering responsibility, rather than a systems engineering and technical direction responsibility.

c. In October of 1962, as a matter of convenience and working expediency from a contractual viewpoint, I transferred the administration of the SE contract for CORONA/MURAL to the CIA Contracts Officer stationed here (Mr. [redacted] At that time the CORONA/MURAL contract was modified as in the case of LANYARD to give Loc[redacted] systems engineering role only. This contract was identified De[redacted]42, with a period of performance from October to June of 1963. This contract was renewed by Letter Contract on 1 July 1963 to run to 30 June 1964, and is due for definitization in the immediate future. This document is identified D[redacted] Attachment 2 is the Statement of Work, Exhibit A, which was a part De[redacted]2 and has been carried on under the Letter Contr Del[redacted]28. Also, in a similar fashion, Attachment 3 has been included as a carry over from the old contract to the Letter Contract. This is the operating procedure for system engineering and technical direction dated 10 June 1963. This document is a somewhat detailed description of the operation of the TD function by the contractor, and responsibilities of the CCB. References to the CCB in the contractual document are again quite minimal. These are CCB approval of TDs in paragraph III. 3; initiation of TDs in paragraph V. 2; and the provision for AF CCB signatures on the TD authorization sheet.

[redacted]

ROBERT E. GREER
Major General, USAF
Director, Program A

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THE FOLLOWING IS EXTRACTED FROM PROGRAM CONCEPT DOCUMENT ATTACHED TO SAFSP MEMORANDUM TO DR. CHARYK:

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Letter Contract De[redacted]

EXHIBIT "A"

STATEMENT OF WORK

I. SCOPE

The contractor shall accomplish System Engineering for the Government as defined herein. The contractor shall implement Technical Direction (SETD) of research, development, production and testing by associate contractors in assigned programs. The associate contractors are:

(1) Itek Laboratories
(2) G.E., MSVD
(3) Lockheed Missiles and Space Company
(4) Such other associate and subcontractors as may be contractually assigned.

II. FUNCTIONS

The Contractor shall perform the following System Engineering functions:

1. Determine system requirements and establish performance specifications for assigned programs through studies and analyses.

2. Recommend to the Government required research, development and experimentation programs required to achieve objectives of assigned programs.

3. Analyze and recommend requirements for Design Control Specifications, Acceptance Test Specifications, Engineering Analysis Reports and other related reports, procedures and specifications. The Associate Contractors shall present all such documents, including revisions thereto, to SETD for review. The Contractor will make recommendations thereon to the Government.

4. Evaluate system, subsystem and component development and test programs and prepare recommendations as required.

5. Prepare and coordinate Technical Directives in accordance with System Engineering and Technical Direction Procedures incorporated into this document by reference.

6. Conduct continuing evaluation of system, subsystem and equipment performance to determine degree of compliance with all functional

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and operational requirements. The Contractor shall prepare and submit reports and recommendations for system design improvements as required.

7. Establish program milestones and maintain a master program schedule.

8. Evaluate and report program status to the Government.

9. Perform technical evaluation of requests from Associate Contractors for design or performance waivers on components, subsystems, and item equipment, and ground support equipment. Submit recommendations to the Government regarding approval of proposed waivers.

10. Evaluate and provide recommendations to Associate Contractors in the integration of subsystems, operating procedures and plans, tests and test operations.

11. Review and evaluate designs of Associate Contractors to assure maximum interchangeability and compatibility of associated subsystems and equipment.

12. Review and evaluate reliability programs established by Associate Contractors to assure consistency, quality and adequacy of effort.

13. Review Associate Contractors' work statements to assure fulfillment of technical performance requirements.

14. Witness qualification and acceptance tests of the Associate Contractors' deliverable end items, participate in the evaluation of the test data and make recommendations thereon to the Government.

15. Review Associate internal Engineering Change Orders to determine if interface problems exist.

16. Such other functions as AFSSD may direct.

III. PERIOD OF PERFORMANCE AND LEVEL OF EFFORT.

The period of performance will be from 1 November 1962 through 30 June 1963. The level of efforts is subject to negotiations with the Contracting Officer.

IV. PROCEDURES

The Contractor shall perform the above tasks in accordance with Systems Engineering and Technical Direction ProcedurDelete This85 dated 3-4-62), incorporated herein by reference.

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OPERATING PROCEDURE
FOR
SYSTEMS ENGINEERING AND TECHNICAL DIRECTION

10 June 1963

~~SPECIAL HANDLING~~

Atch 3

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I. OBJECTIVE

This document is in two parts: Part I outlines the working relationships and procedures to be followed in implementing Systems Engineering and Technical Direction (SETD) of research, development, production and test of the Program. Part II describes the LMSC organization that is established to accomplish Systems Engineering and outlines many of the pertinent LMSC internal and SETD procedures for accomplishing the over-all SETD task.

PART I

II. PURPOSE

Air Force Systems Division (AFSSD) has the responsibility for Systems Engineering and Technical Direction (SETD) for the Program and has contracted with LMSC to perform the Systems Engineering functions.

LMSC (S.E.) will perform these functions in accordance with the procedures outlined in this document.

III. DEFINITIONS

1. System Engineering.

The process of applying science and technology to the study and planning of an over-all satellite mapping system, whereby hardware designs are made compatible with system designs. Detailed analysis of components or procedures which affect the interfaces may be required for the program. SE also includes scheduling, reviewing Q.A. procedures and integration activities, witnessing acceptance test and making recommendations regarding acceptance of Associate Contractor equipment.

2. Technical Direction.

The process by which AFSSD exercises supervision of technical aspects of the work of associate Hq/AFSSD contractors in accordance with Hq/AFSSD approved procedures, for the purpose of unifying the contractor efforts and insuring over-all technical adequacy.

3. Technical Directives.

Documents which initiate Technical Direction to associate contractors. Technical Directives must be approved by SSD. If the operational configuration is affected, the TD must be approved by the CCB. If contract is affected, the TD must be approved by the Contracting Officer or his representative. (Refer to Fig. 1.)

4. Associate Contractor.

A concern holding a contract with Hq/AFSSD in which provision is made for supervision of the contractor's efforts by SETD.

IV. MEETINGS.

1. Technical Direction Meeting.

a. Purpose. Technical (TD) meetings are conducted to review progress and to define action required by the associate contractor(s) or SPO. Decisions reached at those meetings are confirmed where necessary by the issuance of Technical Directives or appropriate contractual documentation with the approval of AFSSD and Headquarters.

b. Representation. LMSC, Fairchild Camera and Inst. Corp., Eastman Kodak, Headquarters and AFSSD will normally attend. Other appropriate associate contractors and subcontractors concerned with the Program will attend as requested by AFSSD or SE Associate contractor/subcontractor participation will be coordinated with the associate contractor concerned. The SETD shall be notified at least one week prior to the meeting of number and names of attendees.

c. Preparation. There shall be one TD meeting each month. Meetings shall be held at LMSC and other appropriate associate contractor locations as designated by AFSSD. The host Contractor shall be responsible for providing all required facilities for the meeting. Notification of appropriate subcontractors and associate contractors of TD meeting schedules and agendas shall be the responsibility of the SETD. Associate contractors

c. Continued -

may submit agenda items to the SETD for inclusion on the TD agenda.

d. Chairmanship. The TD meeting will be chaired by SETD or designated representative. For those TD meetings involving more than one contractor, the meeting may be separated into sections.

e. Documentation. LMSC (SE) shall prepare Technical Direction meeting summaries. These summaries will include a description of all action items and transcripts of agreements which have been reached. Summaries shall be published within one (1) calendar week after the TD meeting. Normally, Technical Directives will be issued as a result of TD meetings; however, Technical Directives may be initiated, processed and issued at any time and action does not need to wait for discussion at a TD meeting. Proposed Technical Directives affecting the associate contractors must be signed by the designated associate contractor representative. This signature does not indicate either approval or disapproval.

V. TECHNICAL DIRECTIVES

Technical Directives may be proposed by SETD, Associate Contractors, and customer representatives in two ways, as follows:

1. Technical Directives will normally be handled at scheduled Technical Directive meetings. Proposed Technical Directives will be reviewed, discussed and action directed. Sign-off of the TD summary will constitute the approval by AFSSD. Based on TD meeting summary publication, SE will obtain signatures required for final release and distribute the TD. A flow diagram of TD action through the medium of TD meetings is shown on Figure 1.
2. Technical Directives may be proposed and initiated during normal day to day activities due to formal or informal contact between AFCCB, Associate Contractors, and SE Contractor. SE will coordinate the proposed TD with Associate Contractors and submit it for approval. This coordination may be by the hand-carry method, TWX, letter, or telephone (within security limitations). TWX messages will contain a statement identifying originator. SE will then formalize the TD and obtain signatures required for final release. A flow diagram of TD action as a result of day by day activities is shown on Figure 2.

PART II

VI. SETD ORGANIZATION

The Program SETD organization will accomplish System Engineering, Integration, and Technical Direction for the entire payload system. Its functions shall include:

A. Functions.

The SE Contractor shall perform the following System Engineering functions:

1. Determine system engineering requirements and establish system performance specifications for Program.
2. Recommend to Customer required research, development and experimentation programs required to achieve program objectives.
3. Analyze and recommend requirements for Design Control Specifications, Acceptance Test Specifications, Engineering Analysis Reports and other related reports, procedures and specifications. SE Contractor shall review and evaluate all such documents, including all revisions thereto, prepared by Associate Contractors and make recommendations to Headquarters and AFSSD.
4. Evaluate subsystem and component development and test programs and prepare recommendations as required.
5. Prepare and coordinate approved Technical Directives in accordance with SETD Procedures incorporated into this document by reference.
6. SE Contractor shall prepare and submit reports and recommendations for system design improvements as required.
7. Establish program milestones and maintain a master program.

schedule.

8. Evaluate and report program status to AFSSD and CCB.

9. Perform technical evaluation of requests from Associate Contractors for design and performance waivers on end item equipment and submit recommendations to Headquarters and AFSSD regarding approval of proposed waivers. This review shall apply to components, subsystem and ground support equipment of Program.

10. Evaluate and provide recommendations to Associate Contractors for integration of subsystems, operating procedures and plans, tests, and test operations.

11. Review and evaluate designs of Associate Contractors to assure maximum interchangeability and compatibility of associated subsystems and equipment.

12. Review and evaluate reliability programs established by Associate Contractors to assure consistency, quality, and adequacy of effort.

13. Review Associate Contractor's work statement to assure fulfillment of technical performance requirements.

14. Witness acceptance tests of associate contractor's deliverable end items, participate in evaluation of acceptance test data, and make recommendations to AFSSD and CCB.

15. Review internal engineering orders to determine if interface problems exist.

16. Such other functions as SSD may direct.

VII. COMMITMENT ACTIONS

Commitment actions for SETD will be formalized and processed as follows:

A. Technical Directives.

The document used by HQ/AFSSD for contractual action with contractors is the Technical Directive (TD), shown as Figure 3.

B. Preparation and Coordination of Proposed Technical Directives (TD).

Reference Para. V, TD's may be proposed by Associate Contractors, SE, and HQ/AFSSD. The originator prepares a TD draft on the "Proposed Technical Directive," shown as Figure 4. The completed forms are forwarded to SE. SE then:

1. Reviews scope and contents.
2. Revises proposed TD and Background Data Sheets (if required).
3. Distributes preliminary copies of the TD as required.
4. Coordinate Associate Contractor application in producing required documentation to implement TD release.
5. Collect all support data and documentation for presentation to AFSSD.
    a. Each proposed configuration change TD will generally include the following information:
        (1) Reason for change, such as:
            (a) Reliability
            (b) Operational performance
            (c) Maintainability
            (d) Required by interface considerations
            (e) Change in cost
            (f) Other
        (2) Complete description of change.
        (3) Effect of change on (1) schedule or deliveries;

(2) interface with other systems; (3) GSE; (4) retrofit; (5) other.

(4) Effect of change on funds or contracts:

(a) Black cost and/or contract scope.

(b) White cost and/or contract scope.

b. TD shall be proposed in accordance with existing SETD procedures.

c. The change priority shall be designated as:

(1) Emergency action: involving safety or deficiencies which could result in personnel injury, equipment damage, or operational curtailment of an impending launch.

(2) Priority action: involving deficiencies or conditions which, if uncorrected, will reduce the system effectiveness.

(3) Routine action: all other configuration changes.

6. Present the TD to AFSSD for review and signature. Changes in a proposed TD require re-coordination with prior approving offices only when the scope or intent is altered as determined by SETD. Cost estimates must be accurate to provide a firm basis for budgetary control. To establish a good cost estimate, the SE, in coordination with AFSSD personnel, reviews data with the affected Associate Contractor prior to presentation for signature.

C. Release of Formal Technical Directives.

Upon completion of coordination, the SE prepares the formal TD for issue (Figure 3). The date of issue is not inserted until signed and TD is ready for final release. Final sign-off authority (or designated representative) is as follows:

1. Systems Engineering Manager.
2. Deputy Commander, Space Programs, AFSSD.
3. Contracting Officer (when scope or intent is altered).

The SE presents the formal TD with supporting papers to AFSSD for final signature. The release date is then inserted on the TD and distribution made. Original TD and Background Data Sheets are retained in the SETD permanent file.

D. Distribution of TD Enclosures.

When a TD contains an enclosure of the type which would be costly or time-consuming to duplicate for distribution, it will not be necessary to include a copy of such enclosure with each copy of the TD. In such cases, the following notation is made on internally distributed copies:

> "A copy of the enclosure(s) is available in the SETD file for reference."

E. Air Force Document Used in Lieu of TD.

During coordination of a proposed TD, the AFSSD coordinating office may indicate by comment that the TD will be covered by an Air Force document (contract supplement, etc.) instead of a formal TD. The proposed TD is typed into final form except that:

1. It is addressed to the AFSSD office.
2. The first paragraph identifies the contractor and the action requested.
3. The last paragraph requests that the Contracting Officer's representative furnish copies of the resulting contractual document to SE (LMSC), AFSSD offices, and all contractors.

The TD is presented to the required Associate Contractor(s) and HQ/AFSSD offices for signature.

F. Contractor Acceptance of a TD.

The associate contractor indicates acceptance of a TD by signature and by itemizing on the TD form its effect upon the schedule and cost.

G. Non-Acceptance.

If a contractor does not approve a TD, the SETD takes action as follows:

(a) The reasons given by the contractor are not acceptable - AFCC3 is notified to resolve.

(b) The reasons given by the contractor are acceptable to SETD -- SETD publishes a memorandum notice to all pertinent partie stating that the TD has been cancelled.

H. Superseding Technical Direction.

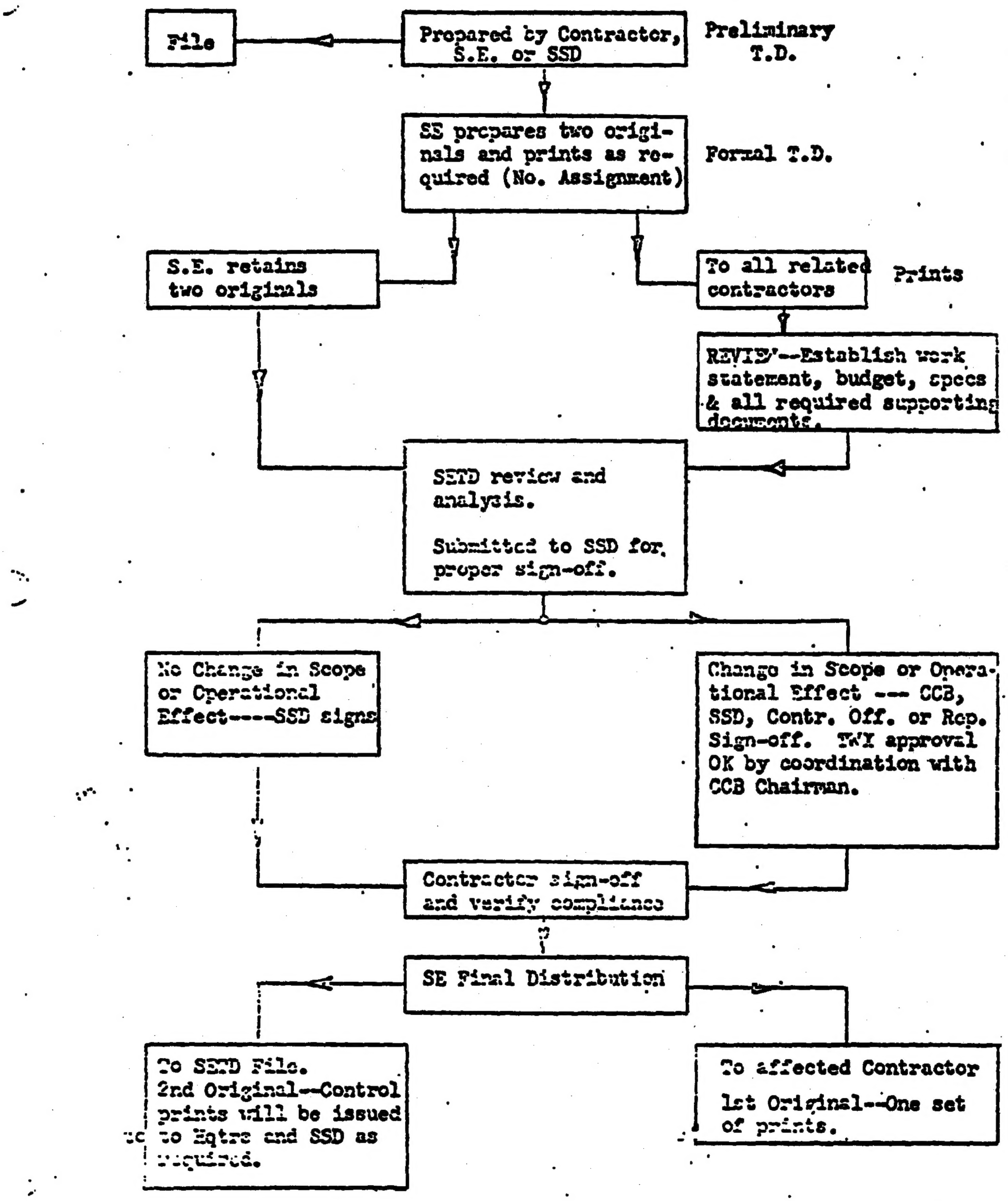
When it becomes necessary to amend, modify or cancel technical direction contained in a formally issued TD, the SETD takes action as follows:

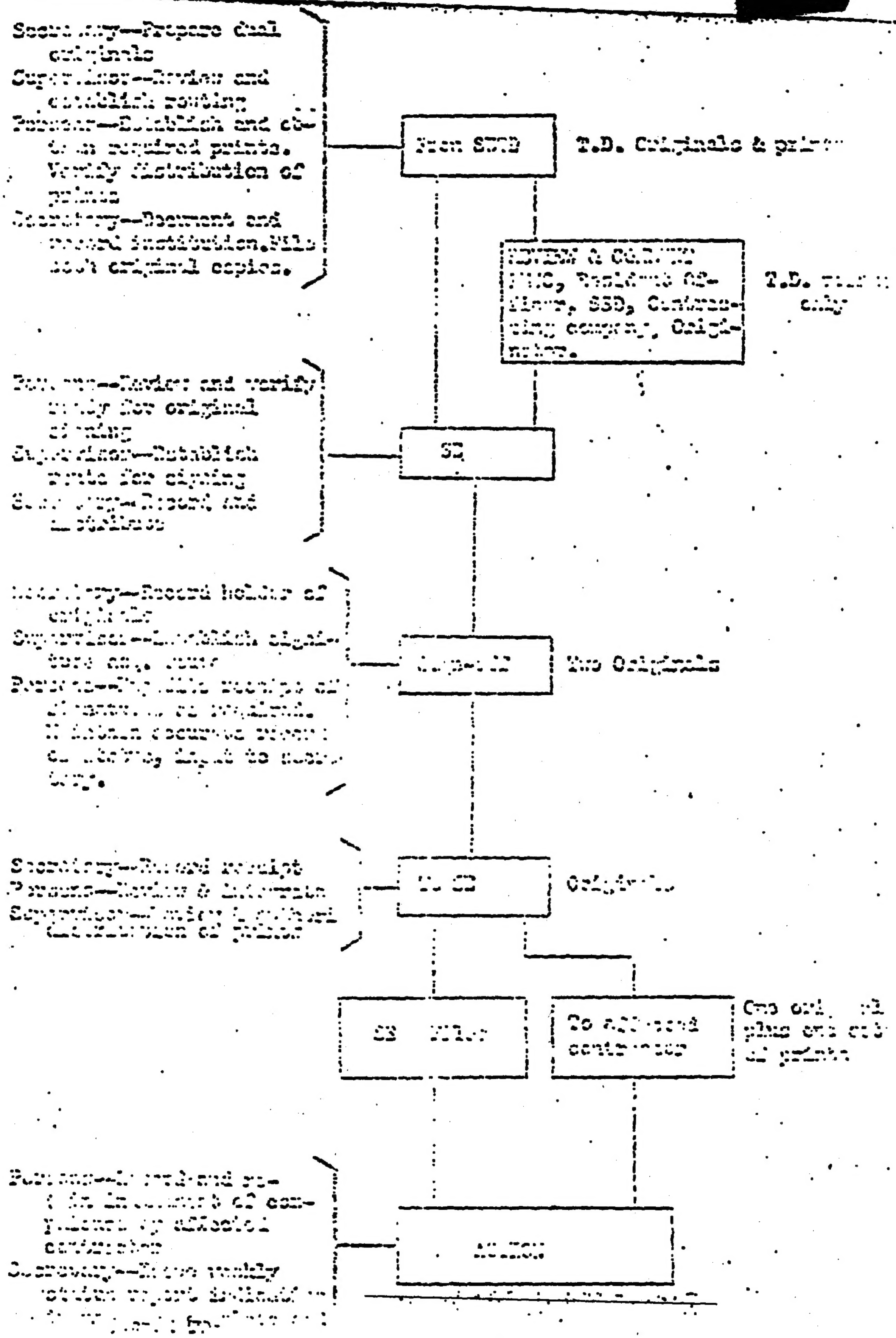
1. The change alters the scope or basic intent of a TD this procedure per paragraph Ga of b will be followed to resolve.
2. Initiate a new TD with definition of all affected TD's defined.

~~SPECIAL HANDLING~~

D[redacted]855-64

S.E.T.D. TECHNICAL DIRECTIVE FLOW DIAGRAM


File
Prepared by Contractor, S.E. or SSD
Preliminary T.D.
SE prepares two originals and prints as required (No. Assignment)
Formal T.D.
S.E. retains two originals
To all related contractors
Prints
REVIEW--Establish work statement, budget, specs & all required supporting documents.
SETD review and analysis.
Submitted to SSD for proper sign-off.
No Change in Scope or Operational Effect----SSD signs
Change in Scope or Operational Effect --- CCB, SSD, Contr. Off. or Rep. Sign-off. TWX approval OK by coordination with CCB Chairman.
Contractor sign-off and verify compliance
SE Final Distribution
To SETD File. 2nd Original--Control prints will be issued to Hqtrs and SSD as required.
To affected Contractor
1st Original--One set of prints.


Secretary—Prepare dual originals
Supervisor—Review and establish routing
Process—Establish and obtain required prints. Verify distribution of prints
Secretary—Document and record distribution. File both original copies.
From SSTD
T.D. Originals & prints
REVIEW & CONCUR [illegible], Technical Officer, SSD, Contracting company, Originator.
T.D. prints only
Process—Review and verify ready for original signing
Supervisor—Establish route for signing
Secretary—Record and distribute
SS
Secretary—Record holder of originals
Supervisor—Establish signature [illegible]
Process—[illegible]
[illegible]
Two Originals
Secretary—Record receipt
Process—Review & [illegible]
Supervisor—[illegible] distribution of prints
To SS
Originals
SS Files
To affected contractor
One original plus one set of prints
Process—[illegible] of compliance by affected contractor
Secretary—[illegible] weekly status report [illegible]
ACTION

~~SPECIAL HANDLING~~

TECHNICAL DIRECTIVE 1002
AUTHORIZATION SHEET

[redacted] 3855-64
Rev. [illegible]

T.D. NUMBER ______ DATE OF ISSUE ______ PAGE 1 OF ___

Title ______

Effectivity ______ Cost Estimate ______

AUTHORIZATION

Lockheed Missiles & Space Company
By

	S. E. Manager	Date
AFCCB APPROVALS		
______	Date	TWX #
______	Date	TWX #
______	Date	TWX #
______	Date	TWX #

AFSSD APPROVAL

This T.D. (is)(is not) approved

AFSSD REPRESENTATIVE	Date	TWX #

REMARKS:

DIRECTIVE OF CONTRACTING OFFICER

Subject to the "Changes" Clause of Contract Number ______, the Contractor is directed to proceed with the work prescribed by this T.D.

Contracting Officer Representative	Date	TWX #

CONTRACTOR ACKNOWLEDGMENT

Effect on Schedules ______

Definitive Contract Proposal to be Submitted ______ date.

Changes within General Scope of Contract YES ______ NO ______

Effect on Cost ______ FY ______ FY

Signature ______

Date ______

[illegible]

Page 2 of ~~SPECIAL HANDLING~~

Lockheed Aircraft Corp. - Missiles and Space D[redacted]3855-64

PROPOSED TECHNICAL DIRECTIVE

NO. ______

TO:

DATE:

SUBJECT:

1. The purpose of this Technical Directive is to

2. Justification

ORIGINATOR ______________

ORG. ____________